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ग्राहक संतुष्टि के माप के मार्गदर्शी सिद्धांत

Indian Standard

GUIDELINES FOR MEASUREMENT OF CUSTOMER SATISFACTION

ICS 03.120.10

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BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

January 2006

Price Group 9

Indian Standard

GUIDELINES FOR MEASUREMENT OF CUSTOMER SATISFACTION

1 SCOPE

1.1 This standard provides guidelines to an organization to develop its processes for measuring customer satisfaction in all areas of interest to the customer and/or the organization which are generic, independent of any specific product, process, industry, or economic sector.

1.2 These guidelines cover objectives, provide elements of customer satisfaction measurement exercise, and suggest methods of evaluation.

2 REFERENCES

The following standards contain provisions which through reference in this text constitute provisions of this standard. At the time of publication, the editions indicated were valid. All standards are subject to revision and parties to agreements based on this standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below:

IS/ISO No.	*Title*
9001 : 2000	Quality management systems — Requirements
9004 : 2000	Quality management systems — Guidelines for performance improvements
15280 : 2003	Quality function deployment

3 TERMINOLOGY

3.1 Customer — Organization or person that receives a product.

Example: Consumer, client, end-user, retailer, beneficiary and purchaser.

NOTE — A customer can be internal or external to the organization.

3.2 Customer Satisfaction — Customer's perception of the degree to which the customer's requirements have been fulfilled.

NOTES

1 Customer complaints are a common indicator of low customer satisfaction but their absence does not necessarily imply high customer satisfaction.

2 Even when customer requirements have been agreed with the customer and fulfilled, this does not necessarily ensure high customer satisfaction.

3.3 Satisfaction — Satisfaction is the consumer's fulfillment response. It is a judgment that a product and/or service feature, or the product or service itself, provided (or is providing) a pleasurable level of consumption — related fulfillment, including levels of under — or over — fulfillment. Satisfaction with a product and/or service is a construct that requires experience and use of a product and/or service.

NOTES

1 Satisfaction is a feeling. It is a short term attitude that can readily change given a constellation of circumstances. It resides in the users mind and it is different from observable behaviours, such as, product choice, complaining, and repurchase.

2 Satisfaction commonly has thresholds at both a lower level (in sufficiency or under fulfillment) and an upper level (excess or over fulfillment).

3.4 Measurement — Creating an instrument using which an organization can gauge customer's sense of fulfillment with respect to organization's offer — be it product and/or service or part. Also included in measurement is customer's sense of fulfillment with respect to offers made by other competitors or from experiences of substitutable products/services (*see* IS 15280).

3.5 Process — Set of interrelated or interacting activities which transform inputs into outputs.

NOTES

1 Inputs to a process are generally outputs of other processes.

2 Processes in an organization are generally planned and carried out under controlled conditions to add value.

3 A process where the conformity of the resulting product cannot be readily or economically verified is frequently referred to as a 'special process'.

3.6 Product — Result of a process.

NOTES

1 There are four generic product categories, as follows:

a) services (for example, transport);

b) software (for example, computer program, dictionary);

c) hardware (for example, engine mechanical part); and

d) processed materials (for example, lubricant).

Many products comprise elements belonging to different generic product categories. Whether the product is then called service, software, hardware or processed material depends on the dominant element. For example, the offered product 'automobile' consist of hardware (for example, tyres), processed materials (for example, fuel, cooling liquid), software (for example, engine control software, driver's manual), and service (for example, operating explanations given by the salesman).

2 Service is the result of at least one activity necessarily performed at the interface between the supplier and customer

is generally intangible. Provision of a service can involve, for example, the following :

a) an activity performed on a customer-supplied tangible product (for example, automobile to be repaired);

b) an activity performed on a customer-supplied intangible product (for example, the income statement needed to prepare a tax return);

c) the delivery of an intangible product (for example, the delivery of information in the context of knowledge transmission); and

d) the creation of ambience for the customer (for example, in hotels and restaurants).

Software consists of information and is generally intangible and can be in the form of approaches, transaction or procedures.

Hardware is generally tangible and its amount is a countable characteristic. Processed materials are generally tangible and their amount is a continuous characteristic. Hardware and processed materials often are referred to as goods.

e) Quality assurance is mainly focused on intended product.

4 OBJECTIVES OF CUSTOMER SATISFACTION MEASUREMENT

The basic objectives of any customer satisfaction measurement include:

a) Determination of overall satisfaction with regard to product, service, or buying experience,

b) Gaining deeper insight into customers' experience,

c) Determination of areas of dissatisfaction on which to focus corrective/preventive actions,

d) Determination of areas of satisfaction that need to be maintained (or enhanced),

e) Identification of performance or functional limitations as seen by the customer,

f) Benchmarking how the customers rate the products and/or services relative to organization's competitors products and/or services,

g) Providing the framework to develop a comprehensive corrective/preventive action plan to respond to the customers' concerns and issues,

h) Soliciting customer inputs for product and process improvement,

j) Linking customer satisfaction to internal performance and employee satisfaction,

k) Determination of the effective complaint redressal mechanism, and

m) Determination of customers' perceptions and/or satisfaction with, organization's performance in areas such as parameters of quality, service and processes.

5 CUSTOMER SATISFACTION MEASUREMENT EXERCISE — CONCEPTS, GAPS AND BENEFITS

Customer satisfaction measurement is a continuous process. The overall concept of customer satisfaction measurement can be best described pictorially as shown in Fig. 1. The effectiveness of the measure is tested by repeated surveys and other methods. The process of determination is subject to continuous adaptation and improvement.

5.1 As a useful strategic management tool, measurement of customer satisfaction is useful in determining whether there are gaps between:

a) What the business believes the customers want and the customer actually wants?

b) What the business believes it has to produce and What it ends up producing?

c) What the business actually delivers and what the customers actually get?

5.2 Effective customer satisfaction measurement can facilitate improving the bottom line by:

a) Supporting management decision making.

b) Defining and directing continuous improvement efforts — including areas of improving employee performance.

c) Incorporating increased awareness of customer needs throughout the organization.

d) Increasing customer retention, loyalty and enthusiasm.

e) Improving existing products and services.

f) Anticipating future customer needs.

g) Leveraging opportunities for product innovation.

h) Improving the image of organization's reputation and its brands.

j) Attracting new customers.

k) Providing a more effective resource allocation process.

m) Improving brand image.

6 MODELS

Customer satisfaction measurement can be modelled into some traditional macro models and micro models.

6.1 Macro Models

6.1.1 The traditional macro model of customer satisfaction is shown in Fig. 2.

6.1.2 Another macro model would be the linkage of overall service satisfaction, encounter satisfaction and perceived service quality as shown in Fig. 3.

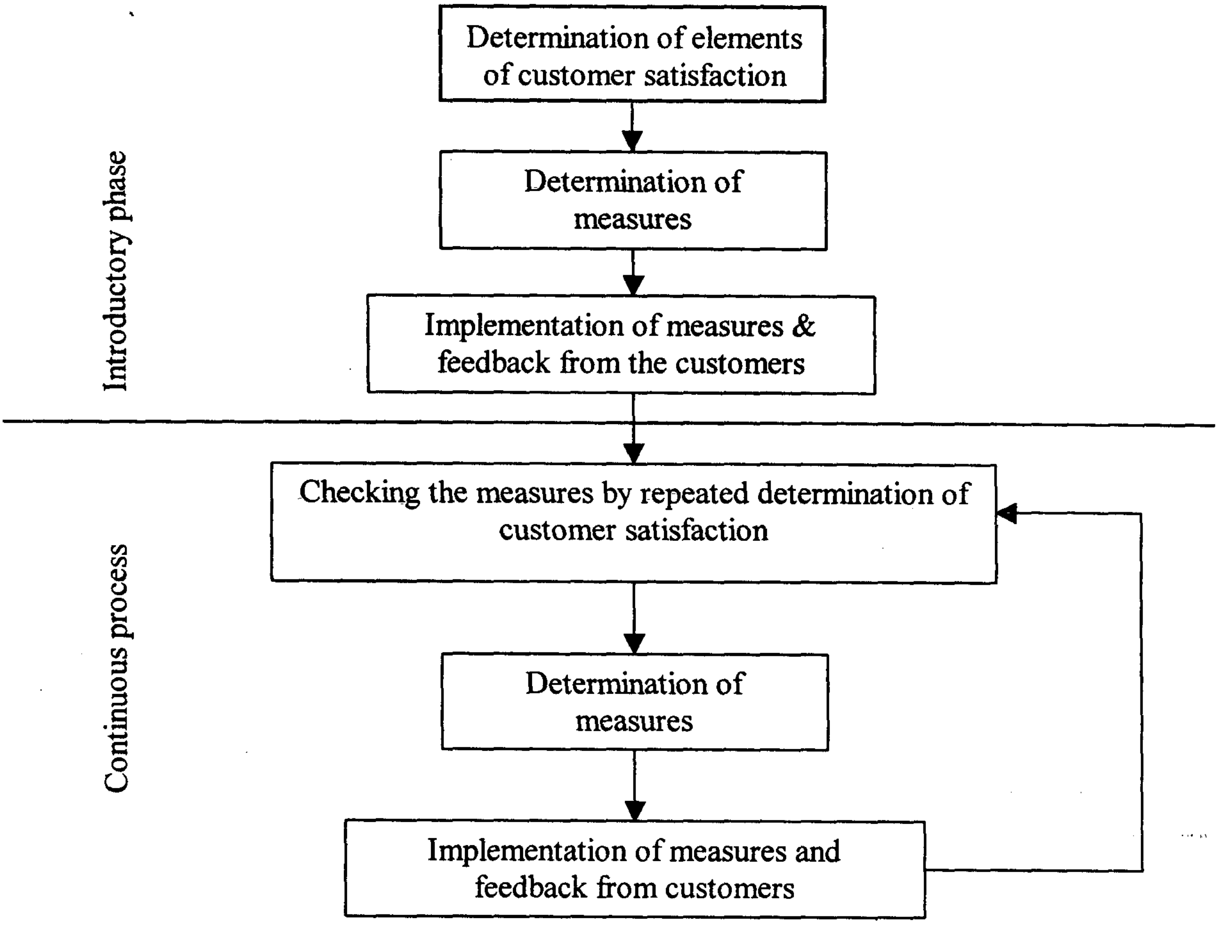
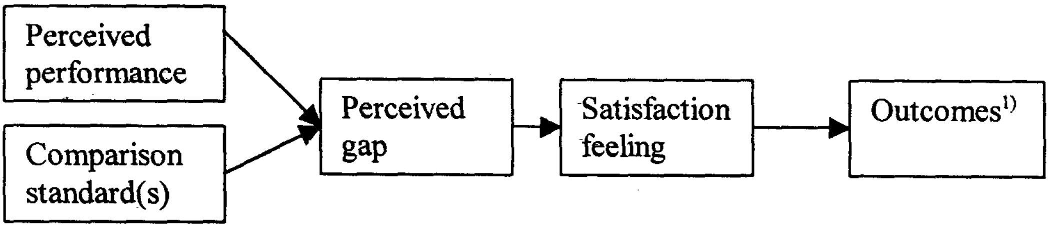

Introductory phase
Determination of elements of customer satisfaction
Determination of measures
Implementation of measures & feedback from the customers
Continuous process
Checking the measures by repeated determination of customer satisfaction
Determination of measures
Implementation of measures and feedback from customers

FIG. 1 CONCEPTUAL FRAMEWORK OF CUSTOMER SATISFACTION MEASUREMENT



1)Includes intent to purchase, word-of-mouth, loyalty and complaints.

FIG. 2 TRADITIONAL MACRO MODEL

6.1.3 Some models differentiate technical service quality and perceived service quality. Fig. 4 shows one such model and how satisfaction results from a comparison between expected service and perceived service. This model is explicit about cyclical/feed back loop that effects satisfaction. A customer's prior experience joins other data inputs to shape current satisfaction with a service.

The above models should provide any one with the context for the meaning and analysis of customer satisfaction.

6.2 Micro Models

To measure customer satisfaction micro models need to be developed keeping in view the context drawn out. Following are the types of micro models, which can be put to use for measuring customer satisfaction.

a) *Expectations Disconfirmation Model* — In this model consumer's pre-consumption expectations are compared with post-consumption experiences of a product/service through measurement of an attitude of satisfaction or dissatisfaction towards the product/service. In this model, expectations originate from beliefs about the level of performance that a product/service will provide. This is the predictive meaning of the expectations concept.

b) *Perceived Performance Model* — This model deviates from the model above in that expectations play a less significant role in satisfaction formation. The model performs especially well in situations where a product/ service perform so positively that the consumer's expectations get discounted in her/ his post — consumption reaction to the product /service.

c) *Norms Model* — Norm's model resembles the expectations disconfirmation model in that the consumer compares perceived performance with some standards for performance. In this case, however, the standard is not a predictive expectation. Rather than considering what will happen in the consumption experience, the consumer uses what happen as the comparison standard.

d) *Multiple Process Model* — This model characterizes the satisfaction formation process as multi dimensional. That is, consumers use more than one standard of comparison in forming a (dis)confirmation judgment about an experience with a product/service.

e) *Attribution Model* — This model integrates the concept of perceived causality for a product / service performance into the satisfaction process. Customer uses three factors to determine attribution's effect in satisfaction. This is, locus of causality, stability, and controllability, where locus of causality can be external or internal.

f) *Affective Model* — In this model emotion, liking, and mood influence (dis)satisfaction feelings following the consumption experience. This model therefore differs from the previous ones in that they go beyond rational processes.

g) *Equity Model* — Emphasis in this model is on the consumer's attitude about fair treatment in the consumption processes. Fair treatment can use the concept of the equity ratio (that is, the amount of her/his return for her/his effort made) or the concept of social comparison (that is, perceived, relative level of product/service performance that other consumers experience). Equity can be broken down into three categories, procedural fairness; interaction fairness; and distributional fairness.

Before using the specifications in any model the user organization needs to decide which one of the above alternatives or combinations it would like to go for. In practice, first four models are generally used.

7 SOME APPROACHES OF CUSTOMER SATISFACTION MEASUREMENT

7.1 Customer satisfaction measurement is essentially an on-going process because customer expectations and the business climate change constantly. Consequently the process used to determine customer satisfaction must be executed cyclically. This is also evident from Fig. 5 below.

7.2 Therefore, the following different approaches of customer satisfaction measurement exercise are followed:

7.2.1 *Event Driven*

a) shortly after a sale or delivery of a service is completed,

b) questions limited to the specific event,

c) survey only the people involved or knowledgeable about the event,

d) for a specific sale (for example, an automobile), there could be only one respondent per event,

e) sample sizes are generally small, but should be representative and adequate,

f) simple and limited data analysis, and

g) may or may not inform the participants of the results and actions being taken.

7.2.2 *Periodic*

a) performed at more or less regular intervals (for example, monthly, quarterly, yearly);

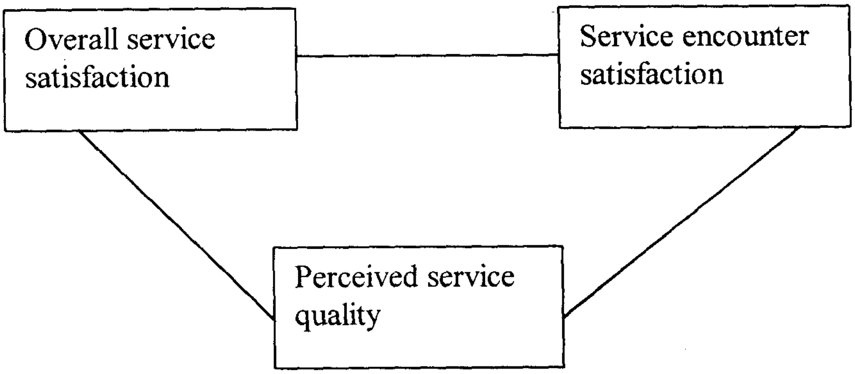
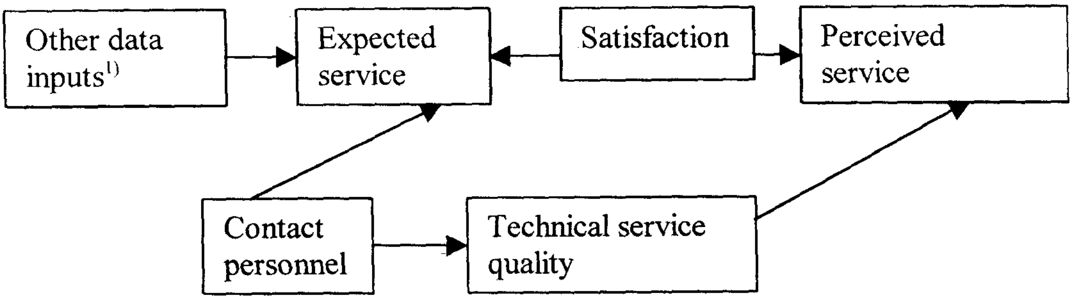

Overall service satisfaction
Service encounter satisfaction
Perceived service quality

FIG. 3 MODEL FOR SERVICE QUALITY



[1] Includes word-of-mouth, past experiences and advertising.

FIG. 4 MODEL FOR SPECIFICATIONS *VERSUS* CUSTOMER PERCEPTIONS

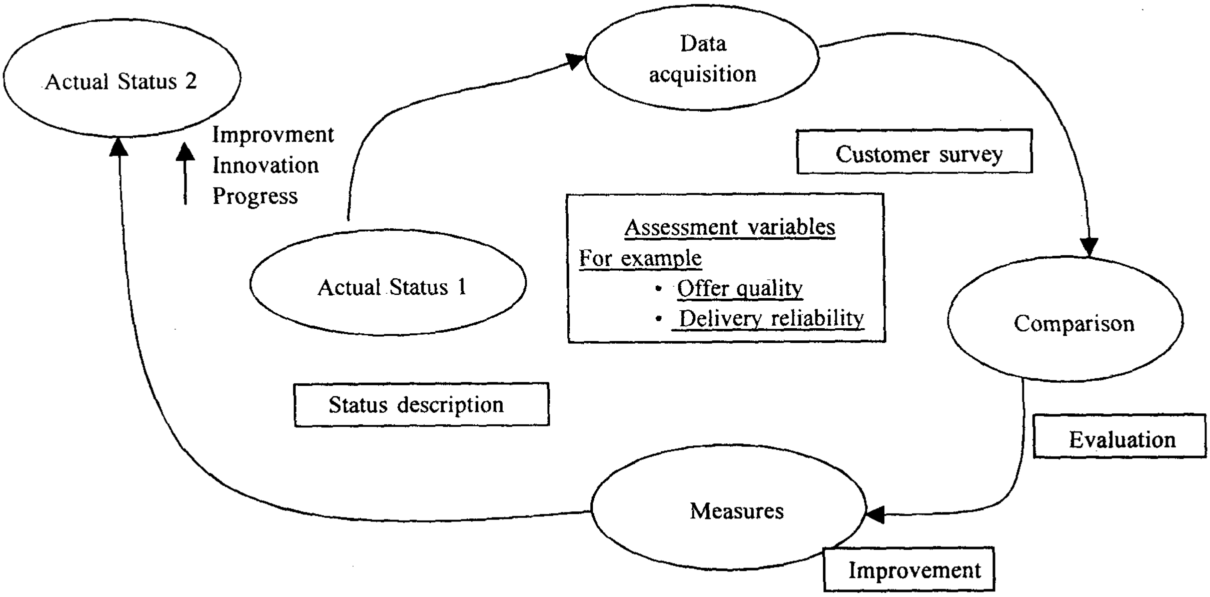


FIG. 5 CUSTOMER SATISFACTION IMPROVEMENT CYCLE

b) broad range of questions covering related facets of a organization's performance;

c) in-depth probing for information to identify areas for improvement (concerns and dissatisfaction);

d) identification of what is important to the customer;

e) survey sample should include executives, decision makers, influencers, operational and maintenance workers to get views from every sector;

f) sample sizes are relatively larger. This should be representative and adequate for the purpose;

g) extensive data analysis possible;

h) formal reports issued for all those with a need to know;

j) comprehensive corrective/preventive action plans initiated to address issues and concerns;

k) top management needs to be involved and strongly supportive of the actions being taken to resolve customer's issues and concerns; and

m) feedback of survey results and actions being taken should be formally presented to the customers who participated.

7.2.3 *Continuous*

Performed continuously.

8 SURVEY DESIGN

A normal survey design will have the following key steps:

a) Statement of the objective of the survey,

b) Definitions of the population to be sampled,

c) Determination of the data to be collected,

d) Methods of measurement,

e) Choice of the sampling unit,

f) Select of the sampling design,

g) Select of the sample,

h) Organization of the field survey,

j) Summary and analysis of the data, and

k) Information gained for future surveys.

9 CHOICE OF METHODOLOGY

9.1 The methodology will depend on several factors. The vital four among these are:

a) *Organization Type* — Public *versus* private organizations, business size, number of branches, are all factors that will influence how the organization can best use its own resources to make contact with and collate information from customers.

b) *Product Type* — How often customers buy the product and from whom, whether they are consumables or durables, whether the cost represents a major expenditure on behalf of the consumer, are all factors that will dictate how often one can contact the customer and how willingly one will be to another in any research.

c) *Customer Type* — Whether they are product and/or service buyers, etc, whether they are buying for themselves or on behalf of others, are factors that will influence the level and type of contact with customers that would be the most appropriate for the purpose of measuring customer satisfaction.

d) *Environmental Type* — Regional/cultural background whether terminal influence on the organization/product/customer.

9.2 Essentially the methodology will involve the following steps which an organization will have to undertake:

a) *Scope and Purpose of the Survey Prior to Measurement should be Clearly Defined* — The organization should know precisely what it should expect out of the process. How will the data be used? Should the data cover all product lines? All geographical boundaries?

b) *Data Collection Method Needs to be Determined* — The organization must be clear how it will collect customer experience data. Whether to collect it through traditional mail response, a face-to-face interview, responses through internet, through telephone or by some other mechanism. This determination is important because not all of the modes are best vehicles for collecting the kind of data the organization may actually want to collect. Though different methods may be suitable in different situations, face-to-face interview is preferable for its small sample size more in depth information.

c) *How the Data should be Stratified is to be Determined* — One must know how one is going to analyze and use the data before designing the instrument.

d) *Appropriate Sample Size is to be Determined* — One must consider the margin of error to ensure validity. It is not necessary to survey all the customers of the organization if it has to get a 95 percent degree of confidence in the findings. Once the sample size is known one can create the needed data base of the customers one is looking for.

e) *Drivers of Satisfaction are to be Identified* — One may easily get carried away by what one is providing instead of being focused on to what the customer is looking for.

f) *Instrument to Assess the Relative Importance of the Drivers of Customer Satisfaction Needs to be Designed* — This is important because one would not like to waste money on things that will provide limited return.

g) *A Method to Verify the Buying Criteria Needs to be Developed* — Such data can be used to compare with the satisfaction so as to be able to predict future buying intentions based on performance.

h) *Structure for Getting Competitive Analysis is to be Developed* — This helps in knowing customers' assessment not only of the organization's product but also that of its competitors'.

j) *Scale Needs to be Developed* — This is useful not only to measure the intensity of customers sense of fulfilment but also creating greater ability to statistically differentiate performance of various competitors, namely, the organization.

k) *Administration of the Survey* — Periodic checks are necessary to ensure that there is adequate coverage of all markets segments. The data can be input into statistical packages for making appropriate analysis.

9.3 Duration of determining customer satisfaction may vary widely based on the scope and criteria used for measuring satisfaction. A typical example for 28 weeks duration is given in Fig. 6.

9.4 The goals and strategies of the satisfaction analysis are to be defined which are based on the goals and strategies of the unit as a whole. The customer satisfaction surveys will generate expectations of improvements among customers. It should be possible to fulfil these. In the conception phase, the following, steps should be defined and documented in a rough structure:

a) Internal users of the analysis results,

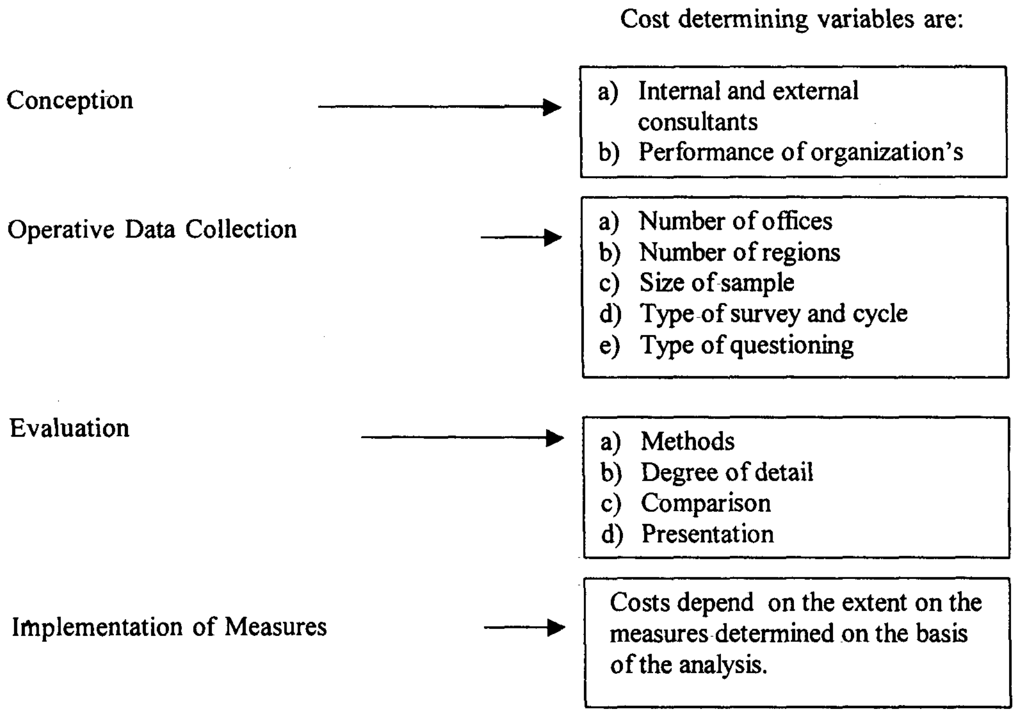
b) Customer target groups,

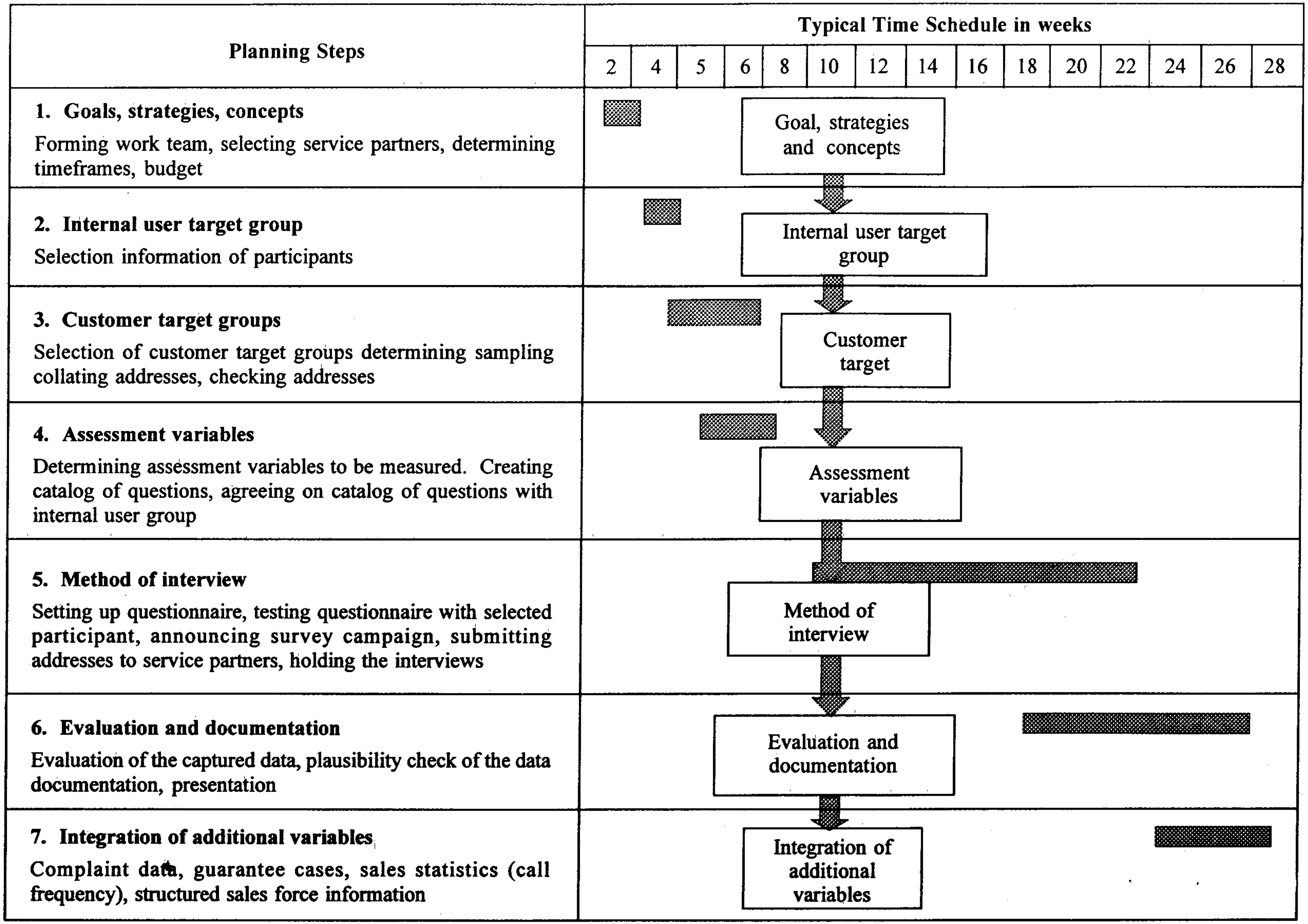
c) Organizational procedure,

d) Time schedules, and

e) Cost factors.

9.5 The customer satisfaction measurements are structured in such a way that the results can be compared over a period of time. Having defined the goals, the budget should be planned which shall take into account the following:


Cost determining variables are:
Conception
a) Internal and external consultants
b) Performance of organization's
Operative Data Collection
a) Number of offices
b) Number of regions
c) Size of sample
d) Type of survey and cycle
e) Type of questioning
Evaluation
a) Methods
b) Degree of detail
c) Comparison
d) Presentation
Implementation of Measures
Costs depend on the extent on the measures determined on the basis of the analysis.


Typical Time Schedule in weeks
2
4
5
6
8
10
12
14
16
18
20
22
24
26
28
Goal, strategies and concepts
Internal user target group
Customer target
Assessment variables
Method of interview
Evaluation and documentation
Integration of additional variables

Planning Steps

1. Goals, strategies, concepts

Forming work team, selecting service partners, determining timeframes, budget

2. Internal user target group

Selection information of participants

3. Customer target groups

Selection of customer target groups determining sampling collating addresses, checking addresses

4. Assessment variables

Determining assessment variables to be measured. Creating catalog of questions, agreeing on catalog of questions with internal user group

5. Method of interview

Setting up questionnaire, testing questionnaire with selected participant, announcing survey campaign, submitting addresses to service partners, holding the interviews

6. Evaluation and documentation

Evaluation of the captured data, plausibility check of the data documentation, presentation

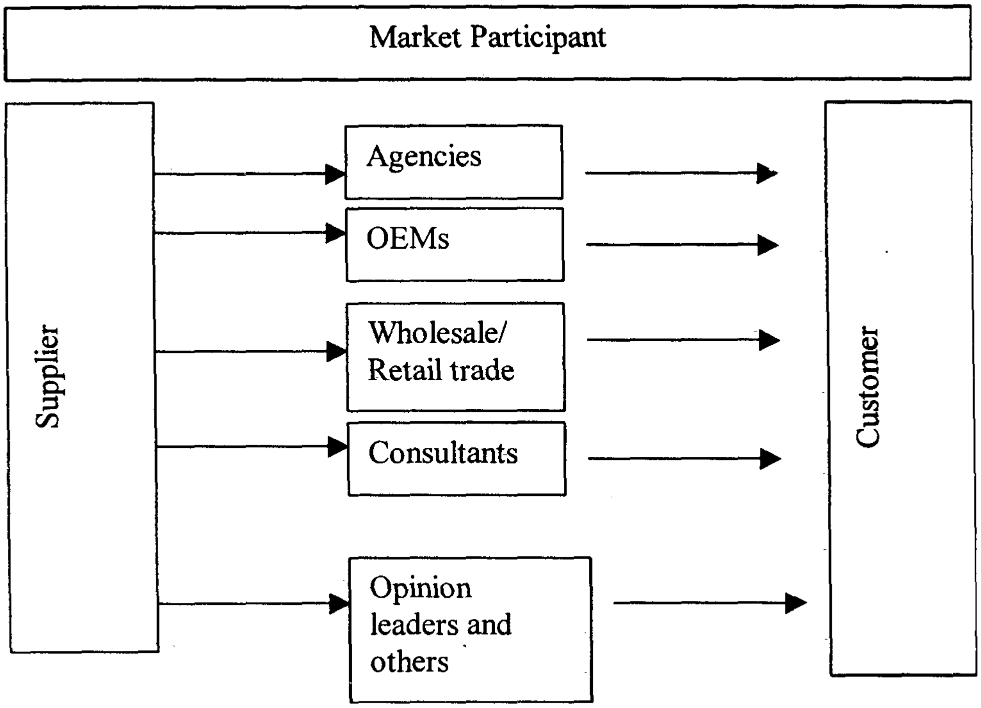
7. Integration of additional variables

Complaint data, guarantee cases, sales statistics (call frequency), structured sales force information

FIG. 6 DURATION OF A TYPICAL CUSTOMER SATISFACTION MEASUREMENT EXERCISE

Cost reduction should be undertaken using the existing know how and experience gained in the other groups and through method transfer.

9.6 Having decided the goal of the satisfaction analysis, the corresponding market participants are to be selected from among the following:



9.7 Further, IS/ISO 9004 recognizes that many sources of customer information already exist within most businesses and that these can be readily employed for the purposes of customer satisfaction measurement. Some of the ways of gathering pertinent customer information include:

a) Customer complaints,

b) Direct communication with customers,

c) Focus group discussions,

d) Reports from consumer groups,

e) Media reports, and

f) Industry studies.

9.8 Besides the survey/interview methods, there are other tools and techniques which can be utilized for determining customer satisfaction, a few of them are listed in Annex A. The general points of concerns of interview methods are also discussed at the end of Annex A.

10 DATA COLLECTION

10.1 The organization should therefore plan data collection methods according to:

a) Customer type and their accessibility,

b) Deadlines or timelines for submission and use of customer satisfaction data,

c) Available funds (for internal and/or external data collection), and

d) Available technology (for reaching customers and for analyzing the data once results are collated).

10.2 The data and information collection must be systematic, detailed and documented, rather than ad-hoc and unplanned, to aid its analysis and usefulness.

10.3 The issue of measuring price satisfaction, in particular, often evokes both surprise and dismay amongst managers. It is (correctly) said that most customers are unhappy about price most of the time. However, measurement of price satisfaction can and should be anchored on two issues:

a) Would you consider the price you paid for what you received in return (value-for-money).

b) Relative to other similar products you have bought, was the price you paid for what you received in return (value-for-money).

That is, what should be measured is relative value-for-money satisfaction rather than absolute price satisfaction.

10.4 Qualitative data shows that customers do not just buy products or services, they buy expectations, end results and dreams. We should always be aware of what we are promising the consumer, either as a direct promise or an implied one. We must know and understand the needs that provide the basis on which consumers purchase or do not purchase our products. Meeting IS/ISO 9001 at its most fundamental level, therefore, means understanding the underlying needs of customers and having in place a series of mechanisms for measuring and satisfying these needs. This obviously goes well beyond collection of complaints data.

11 ELEMENTS/ATTRIBUTES OF CUSTOMER SATISFACTION MEASUREMENT

11.1 Attributes describe the key characteristics of products from the customers' point of view. The wording of attributes must clearly portray the customer experience and avoid terms and descriptions that reflect how an organization perceives its products and services. For this:

a) Use standard attributes.
b) Or involve customers in creating attributes.

11.2 The main attributes of concern are:

a) *Image* — overall beliefs/impressions, business practice ethics, social responsibility.
b) *Expectations* — from quality, service, life, reliability, availability, maintainability, cost per unit of availability, product and quality service parameters.
c) *Satisfaction* — To sum up perceived quality and value *versus* expectations and ideal perceptions including economic success, price repurchase.
d) *Loyalty* — Retention, intention to buy again same and other products, intention to recommend to others, in contrast intention to change.
e) *Voice* — Complaints; customer dialogue easy access and communication, satisfactory and timely redressal.

11.3 The expectations (from a product or service) could be further classified in terms of one or more of the following parameters.

11.3.1 *Product*

a) *Performance* — primary — operating characteristics.
b) *Features* — supplements, attributes, distinctiveness, differences.
c) *Conformance* — compliance with pre-established specifications, standards.
d) *Aesthetics* — appeal to the human senses, elegance, tastefulness.
e) *Reliability* — the ability to meet criteria consistently, dependability, trustworthiness.
f) *Durability* — useful operating life, endurance, hardiness, toughness.
g) *Maintainability* — ease and convenience of repair/rectification.
h) *Safety* — safe operation of product or safe delivery of procedures.
j) Warranty provisions and implementation.
k) *Value* — perceived quality relative to price.

11.3.2 *Service*

a) *Promptness* — timeliness of delivery, punctuality.
b) *Responsiveness* — ability to react to specific needs, awareness, willingness, alertness.
c) *Consideration* — tact, recognition, regard, thoughtfulness, empathy.
d) *Confidence* — reputation, assurance, credence, dependability.
e) *Value* — perceived quality relative to price.
f) Competence
g) Access
h) Courtesy
j) Communication
k) Credibility
m) Security
n) Knowing the customer

11.3.3 *Process*

a) *Information* — instructions, data, facts, knowledge, communications.
b) *Product recall procedures* — effective recall procedures.
c) *Value* — perceived quality relative to price.
d) Perceived quality
e) Financial assistance
f) Sales procedures and experience
g) Billing process (accuracy and timeliness)

11.4 The elements should be clearly defined and understood after the purpose (or need) for obtaining customers' perceptions (for example, desire to improve customer satisfaction, need to acquire more market share) What do you need to know to improve business results?

11.5 The total performance segments or factors are evaluated in two dimensions, namely:

a) *Importance* — How important is the performance feature for the customer?
b) *Satisfaction* — How satisfied is the customer with performance features?

11.6 These conclusions regarding overall performance should also be considered with respect to competition. How does the competitor rate with respect to this performance feature?

12 QUESTIONNAIRE DEVELOPMENT

12.1 It is a complex job, to select the areas for including, and the sub-set of questions within those areas to provide sufficient detail to gain the knowledge one needs to improve business. If questionnaire length is a problem, the questionnaire could be divided into several smaller questionnaires with a core set of questions to be asked to each respondent and a sub-set of the total questionnaire for different respondents. Questionnaires should be designed such that the maximum time to complete is less than 20 min (include samples of sub-set questions).

12.2 Product and/or service being surveyed needs to be clearly defined up front.

12.3 Scale of measurement needs to be clearly defined. It may depend upon how questions are worded. For example, if the question is a positive statement, such as, 'The service you received was satisfactory', then the answers might be, 'Strongly agree, agree, neither agree nor disagree, disagree, strongly disagree' that is, a five point scale. Scale of measurement can be sometimes on a six-point scale to prevent a customer show indifference to a particular characteristic. A higher-level scale up to 10 can be used based on the critically of the parameter being assessed for customer satisfaction.

12.4 Anonymity needs to be offered and guaranteed.

12.5 Selection of research organization to conduct the survey needs to be investigated. Time frame to conduct the survey needs to be appropriate and meet organization needs. Selection of whom to survey, and how to contact them needs to be accomplished. Methodology needs to be determined like:

a) mail surveys,

b) phone interviews,

c) web-based, and

d) face-to-face interviews.

For survey design *see* Annex B.

13 ESTABLISHING VALIDITY AND RELIABILITY OF QUESTIONNAIRE

13.1 Validity

Ability of an instrument to measure what it is designed to measure.

13.2 Face and Content Validity

a) Systematic evaluation of how well the content of instrument represents the measurement task at hand.

b) Each item must have logical link with an objective.

c) Items and questions cover full range of issue or attitude being measured.

d) Coverage should be balanced each/aspect should have similar and adequate representations in question.

e) Done by designer or panel of judges.

13.3 Reliability

Extend to which a scale produces consistent results when repeated measurements are made.

13.3.1 *Test/Retest Reliability*

Instrument is administered once and then again under same or similar conditions at different timing. The same set of respondents complete the questionnaire at two different points in time to see how stable the responses are. Degree of correlation (r) between two set of responses gives questionnaire's test—retest reliability.

13.3.2 *Parallel Form Reliability/Alternative Form Reliability*

Two equivalent forms of scale/instruments are constructed that measure the same issues. The same respondents are measured at different time points and results compared. Low correlation reflects poor reliability.

14 SAMPLING METHOD AND SIZE

14.1 First step is to identify a representative sample of customers to be close to true value for accuracy and second is to fix appropriate sample size (number of customers) to be surveyed or approached for feed-back for precision. With a reasonable organizations for the response. Assessing non-respondents through a sample is worth while in improving validity and accuracy of estimates.

14.2 Customers can be stratified on the basis of factors including (The list is not exhaustive)

a) Exposure of product to environment/climate;

b) Knowledge about the product;

c) Size (individual, retailer, wholesaler; organization);

d) Degree of usage;

e) Expectations/affordability;

f) Attitude (tolerant/complaining);

g) Gender/age of customers; and

h) Geographical boundaries.

14.3 In a given situation the customers may be classified into at least three levels of each of the factors considered above. The weighted sample may be taken from these strata depending upon the expected number of customers in each strata to constitute a sample of only 100 to 250/400 by striking a balance on cost and desired accuracy. Where population of customers is less than 100, complete enumeration may be worth it.

14.4 These sampled customers should be visited personally with prior appointment, a standard questionnaire developed for the purpose to elicit their satisfaction and reasons for disenchantment. This proactive approach is worth its effort, by a competent person who can examine the condition of the product in service and elicit information and minor and major problems faced if any and his expectations to develop future models. A sample of one hundred may be good enough for most purposes.

14.5 For economic considerations the questionnaire may be mailed and non-respondents contacted on phone, and the remaining non-respondents visited. However, this is bound to give rise to more errors and dilute effectiveness. The sample size shall need to be augmented, however not beyond 250/400.

15 METHODS OF INTERVIEW

The various interview forms and the forms of investigation are given in the Fig. 7 and 8.

	Written interview	Telephone interview	Personal interview
Influence by interviewer	No factor	Possible factor but controllable	Always a factor and less controllable
Rate of returns	Relatively low when unannounced or without incentive	Very good	Very good
Information quality	No control over who fills out questionnaire and how questionnaire is filled out.	Well suited both for qualitative and quantitative questions No optical aids possible	Particularly good for qualitative questions very good info on confidential areas
Question scope	Severely limited	Not possible to pose questions with multiple responses	Virtually unlimited can also be extended in discussions
Time requirements	Relatively high	Can be performed rapidly	Large and important cusomers with good connections
Customer groups	All	All	Large and important cusomers with good connections
Costs	Low	Medium	Very high

FIG. 7 INTERVIEW FORMS

	Expert conference	Critical event method	Standardized interviews
Utilized for cases where	Content, topics and supplementary information have not yet been totally established	Question contents are worked out before procedure is implemented	Contents are fixed
Number or amount feasible	Low	Medium	High
Information quality	Almost unlimited amount feasible, detailed information ascertainable	Influence on collection of information possible, structuring occurs de facto	Precisely-specified data in large quantities, easily comparable
Question type	Completely open questions	Completely open questions	Almost exclusively pre-specified, closed questions
Interview form	Personal, possibly by telephone	Personal by telephone, perhaps written	By telephone, written
Customer groups	Strategically important customer	for example, all guarantee cases	All, that is, total sample tests
Costs	High	Medium	Low

FIG. 8 FORMS OF INVESTIGATION

16 ANALYSIS OF DATA

16.1 Analysis and Presentation

Different type of statistical tools from among the following may be used:

- a) Averages/medians/modes, standard deviations/ ranges,
- b) Frequency distribution/Histograms,
- c) Bar charts,
- d) Pie charts,
- e) Pareto charts,
- f) Trend charts,
- g) Tests of hypothesis,
- h) Analysis of variance (ANOVA),
- j) Analysis of co variance (ANCOVA),
- k) Stratification, and
- m) Ratios of supplier's scores to competitors scores (*versus* average of competitors, or *versus* best competitor).

16.2 Customer Satisfaction Index

Essentially, an index of customer satisfaction will be a weighted average considering the essential attributes of concern chosen for the study. An example calculation of Customer Satisfaction Index for four wheeler servicing is given in Annex C.

16.3 Reports

The reports should be tailored for the needs of the audience, which should include summaries, conclusions, and recommendations and include comments on organization scores relative to competitors' scores.

17 WHAT LEVEL OF SATISFACTION IS SATISFACTORY?

17.1 Each organization will make its own decision about the level of satisfaction that would be deemed acceptable and at what level remedial action will need to be -taken. Furthermore, action benchmarks may be set either internally or with reference to external comparisons. One broad indicator of satisfaction, which is normally used, is as under:

a) 80 percent or more customers are satisfied, and

b) 10 percent or fewer customers are dissatisfied.

17.2 Whilst this can be a useful 'rule of thumb', it is important to check for any differences in the level of customer satisfaction by:

a) *Customer Groups* — (for example, repeat customers *versus* one-off buyers, small *versus* large buyers, gender of buyer, location of purchase, branch of purchase, age of buyers.) It is important to ensure that all types of customers are being satisfied because the overall satisfaction figure could be hiding a number of customer sub-groups who are less than satisfied with the product.

b) *Product Dimension* — (for example, price, quality) Is the level of satisfaction uniformly high across different product dimensions or are customers satisfied with, for example, quality of the product but not delivery and after-sales service.

Checking and analyzing for any differences in satisfaction across customer groups and product dimensions is a useful strategic tool in itself, regardless of whether or not one is doing so for the purposes of meeting the requirements of the standard. Emphasis should be on reasons of dissatisfaction and reducing the gap between maximum possible score assigned and score obtained.

ANNEX A

(*Clause* 9.8)

A FEW OTHER TOOLS/TECHNIQUES USED FOR DETERMINING CUSTOMER SATISFACTION

Sl No.	*Tool/Technique*	*Description*
i)	Advisory group	It is a volunteer group of customers. The main purpose of advisory group is to: a) Provide idea for technical or service innovations, b) Detail dissatisfiers, c) Test products or services, d) Represent wide range of inputs, and e) Act as Ambassadors of the organization.
ii)	Focus groups	Focus groups consists 6 of 12 well-selected customers gathered for a specific purpose. Focused interview is one-to-one telephone interview or face-to-face interview with the same mission. Focus group members are not randomly chosen. Their conclusions are to be tested over a broad stratified random sample. Focus groups are an effective way of evaluating and refining a range of design concepts and prototypes, to encourage an externalization of the decision making process. However, they can also provide valuable insights into perceptions and preferences of existing or competitive products and can be a useful way of exploring new requirements and desires. The purpose of the focus group: a) *Invent the future* — Customer brainstorm about future services and products: (groups while using or after using the product/service). b) *Stratification* — Customers defines the nuances of satisfiers and dissatisfiers. c) *Pricing* — Customers give feedback on process *versus* features. d) *Ad-hoc problem* — Customers provide ideas on how to resolve product or service issues.
iii)	Complaint tracking	It is a mechanism to register complaint by a customer and its follow up. Organizations can keep toll free telephone numbers for customers to call and express their complaints and compliments.
iv)	Customer value maps	A customer value map compares price and quality, which are related, to give customer — perceived value. Customers have a perception of the relative quality of products or services and their relative price.
v)	Lead user analysis	Lead users are an extremely valuable cluster of customers and potential customers who can contribute to identification of future opportunities and evaluation of emerging concepts.

Sl No.	*Tool/Technique*	*Description*
		Understanding these users can provide richness of information relatively efficiently. The concept of 'Lead Users' was introduced by Eric von Hippel in the mid 1980s. He defined the lead user as those users who display the following two characteristics: a) They face the needs that will be general in the market place, but face them months or years before the bulk of that market place encounters them. b) They are positioned to benefit significantly by obtaining a solution to those needs.
vi)	Stakeholder analysis — lifecycle approach	A simple tool to encourage the design team to consider the needs of all people who may be influenced by design decisions, both within and without the organization. This approach helps to focus attention on the needs of the critical stakeholders and a range of potential downstream issues. It is often difficult to identify who the critical stakeholders are, particularly in complex distribution chains where the end user may not be the same person as the person who specifies the requirement or signs the purchase requisition. Furthermore, there may be tensions between the needs of different sets of stakeholders. It is thus beneficial to formally consider the different groups and types of stakeholders who will be influenced by the product design, throughout the product's lifecycle.
vii)	Delphi technique	An excellent tool for gaining input from recognized sources of expertise, without the need for face-to-face meetings. It provides a highly disciplined way of addressing or solving a problem. It can be time consuming and the information gained is only as good as the selection of the experts. The Delphi technique uses a highly structured and focused questionnaire approach in order to establish a consensus opinion from 'experts'. Recognizing that these experts may be geographically dispersed, it was designed to be conducted by post, although this does not preclude its use in face-to-face interviews. The method is iterative, and first aims to obtain a broad range of opinions from the target group. The results of the initial survey are collated, summarized and then form the basis of a second, follow on questionnaire. Results from the second questionnaire inform a third and final questionnaire.
viii)	Contextual enquiry	A hybrid between face-to-face interviews and observations, where the customer and the researcher are equal partners in investigating and understanding the usage of a product. It is a powerful approach to gaining rich information, but complex and time consuming. A specific name for a style of user interview, conducted within the context of the customer's activities. This approach enables combining the benefits of observational approaches and the standard face-to-face interview. It is intended to be an interactive exploration of the issues, hence the reason for being called enquiry rather than interview.

Sl No.	*Tool/Technique*	*Description*
		The main difference between the contextual enquiry and the traditional interview is that the enquiry demands a partnership between customer and product development team. The product developers bring special product knowledge, and the customers bring special knowledge about his or her job or specific needs. Both can be viewed as experts and the enquiry is a joint search for information.
ix)	Kano model	It offers some insight into the product attributes, which are perceived to be important to customers. It is an excellent tool to support product specification and a useful discussion tool to generate team understanding. Focuses the attention on differentiating features. Can be powerful when the full methodology is followed, but useful none the less as a visualization tool. Developed in the 80's by Professor Noriaki Kano, the model is based on the concepts of customer quality and provides a simple ranking scheme, which distinguishes between essential and differentiating attributes. The model is a powerful way of visualising product characteristics and stimulating debate within the design team. Kano also produced a rigorous methodology for mapping consumer responses onto the model.
x)	Lost customer survey	These are interviews with customers who have stopped buying the products or services form the organization/or significantly reduced their usage. Normally it is done through telephone so the interviewer can probe areas of dissatisfaction.
xi)	Mystery shoppers	These pose as customers of the targeted organization and test the service quality. They usually have a structured set of questions and experiences to evaluate as they shop. The stores or organizations take the feedback and decide what training or hiring processes need to change.
xii)	New customer feedback	New customer feedback is designed survey initiated shortly after the customer has sampled the service or product. Many universities have started conducting new student survey about the registration and orientations process.
xiii)	Observation	Observation is to observe the customer while buying — directly or through video taping, for example, an organization X trains its employees to observe non-verbal signals of customers and proactively respond to customers' building frustrations. Another organization, a hotel encourages employees not only to observe customer behaviour but also record it so that system issues can be identified.

ANNEX B

(*Clauses* 12.5)

DESIGN OF QUESTIONNAIRE

B-1 SPECIFY THE INFORMATION NEEDED

a) Ensure that the information obtained, fully addresses all the components of the problem, review components of the problem and the approach particularly the research questions, hypothesis and characteristics that influence the research design.

b) Prepare a set of dummy tables.

c) Have a clear idea of the target population.

B-2 TYPE OF INTERVIEWING METHOD

Review of the type of interviewing method determined based on considerations.

B-3 INDIVIDUAL QUESTION CONTENT

a) Is the question necessary?

b) Are several questions needed instead of one to obtain the required information in an unambiguous manner?

c) Do not use double-barreled question.

B-4 RESPONDENT CONSIDERATION

a) Is the respondent informed?

b) If the respondent is not likely to be informed, filter questions that measure familiarity, product use the past experience should be asked before questions about the topics themselves.

c) Can the respondent remember?

d) Avoid errors of omission, telescoping and creation.

e) Questions that do not provide the respondent with cues can underestimate the actual occurrence of an event.

f) Can the respondent articulate?

g) Minimize the effort required of the respondent.

h) Is the context in which the questions are asked appropriate?

j) Make the request for information seem legitimate.

k) If the information is sensitive:

   1) Place sensitive topics at the end of the questionnaire.

   2) Preface the question with a statement that the behaviour of interest is common.

   3) Ask the question using the third-person technique.

   4) Hide the question in a group of other questions that respondents are willing to answer.

   5) Provide response categories rather than asking for specific figures.

   6) Use randomized techniques, if appropriate.

B-5 CHOOSE QUESTION STRUCTURE

a) Open-ended questions are useful in explanatory research and as an opening question.

b) Use structured questions whenever possible.

c) In multiple-choice questions, the response alternatives should include the set of all possible choices and should be mutually exclusive.

d) In a dichotomous question, if a substantial proportion of the respondents can be expected to be neutral, include a neutral alternative.

e) Consider the use of the split ballot technique to reduce order bias in dichotomous and multiple-choice questions.

f) If the response alternatives are numerous, consider using more than one question to reduce the information processing demands on the respondents.

B-6 CHOOSE QUESTION WORDING

a) Define the issue in terms of who, what, when, where, why and way (the six Ws).

b) Use ordinary word. Words should match the vocabulary level of the respondents.

c) Avoid ambiguous words: usually, normally, frequently, often, regularly, occasionally, sometimes, etc.

d) Avoid leading questions that clue the respondent to what the answer should be.

e) Avoid implicit alternatives that are not explicitly expressed in the options.

f) Avoid implicit assumptions.

g) Respondents should not have to make generalization or compute estimates.

h) Use positive and negative statements.

B-7 DETERMINE THE ORDER OF QUESTION

a) The opening question should be interesting, simple, and non-threatening.

b) Qualifying questions should serve as the opening questions.

c) Basic information should be obtained first, followed by classification and finally identification information.

d) Difficult, sensitive, or complex questions should be placed late in the sequence.

e) General questions should precede the specific questions.

f) Questions should be asked in a logical order.

g) Branching questions should be designed carefully to cover all possible contingencies.

h) The question being branched should be placed as close as possible to the question causing the branching, and the branching questions should be ordered so that the respondents cannot anticipate what additional information will be required.

B-8 FORM AND LAYOUT

a) Divide a questionnaire into several parts.

b) Questions in each part should be numbered.

c) The questionnaire should be pre-coded.

d) The questionnaires themselves should be numbered serially.

B-9 REPRODUCE THE QUESTIONNAIRE

a) The questionnaire should have a professional appearance.

b) A booklet format should be used for long questionnaires.

c) Each question should be reproduced on a single page (or double-page spread)

d) Vertical response columns should be used.

e) Grids are useful when there are a number of related questions that use the same set of response categories.

f) The tendency to crowd questions to make the questionnaire look shorter should be avoided.

g) Directions or instructions for individual questions should be placed as close to the questions as possible.

B-10 PRETEST

a) Pretesting should always be done.

b) All aspects of the questionnaire should be tested, including questions content, wording, sequence, form and layout, question difficulty, and instructions.

c) The respondents in the pretest should be similar to those who will be included in the actual survey.

d) Begin the pretest by using personal interviews.

e) The pretest should also be conducted by mail or telephone if those methods are to be used in the actual survey.

f) A variety of interviewers should be used for pretests.

g) The pretest sample size is small, varying from 15 to 30 respondents for the initial testing.

h) Use protocol analysis and debriefing to identify problems.

j) After each significant revision of the questionnaire, another pretest should be conducted, using a different sample of respondents.

k) The responses obtained from the pretest should be coded and analyzed in terms of:

    1) Who wanted it?
    2) What was the scope?
    3) When: Day, hour, date of observation?
    4) Where: Inside the store, at the checkout counter, in a particular department within the store?
    5) Why: Influence of price, brand name, package size, promotion, family members on the purchase?
    6) Way: Personal observer disguised as sales clerk, undisguised personal observer, hidden camera, and obtrusive mechanical device.

B-11 CONSIDERATIONS IN PRETEST

The prototype of the questionnaire is administrated on a small sample of respondents. A number of factors are checked out at this stage.

a) Whether the respondent understands all the questions.

b) The time taken to administer the entire questionnaire.

c) Whether certain words in the questions need explanation.

d) Whether the respondent interprets the question correctly.

e) Whether there is tendency for the respondent to mark out categories like 'don't know', etc, more frequently. To narrow the choice, certain options might have to be dropped.

f) Does the opening question generate interest?

g) Does the fatigue effect creep in very early in the questionnaire?

h) Is the respondent embarrassed about certain questions?

j) Does he require to think a lot to answer the question?

k) Are there many open questions taking a lot of time?

m) Are there any unnecessary questions?

The deficiencies in the questionnaire are ironed out in the pretest stage. The questionnaire designed by you could be administered on a pilot sample for understanding the questioning process better.

ANNEX C

(*Clause* 16.2)

MEASUREMENT OF CUSTOMER SATISFACTION INDEX (SUGGESTIVE)

C-1 DEALER'S SERVICE QUALITY — FOUR WHEELER SERVICING

C-1.1 Questionnaire

Date ______________________

Vehicle No. ______________________

Current Meter Reading ______________________

Vehicle Purchased From ______________________

(Put a √ Mark in Appropriate Column)

Parameter	*Description*	*Scores*				
		1	2	3	4	5
	Quality	Poor	Average	Good	Very Good	Excellent
1	Quality of work performed					
2	Ability to fix the problem on first visit					
3	Availability of parts for service/repair					
4	Availability of trained personnel to do the job					
5	Availability of proper tools and equipments					
	Timeliness	Poor	Average	Good	Very Good	Excellent
1	Promptness of the service advisor in writing your job order					
2	Time taken for service					
3	Availability of serviced vehicle at promised deliver time					
	Value for money	Poor	Average	Good	Very Good	Excellent
1	Explanation of charges at the time of delivery					
2	Fairness of fees for service					

Para-meter	*Description*	*Scores*				
		1	2	3	4	5
Image		Definitely not Recommend	Probably not Recommend	May or may not Recommend	Probably Recommend	Definitely Recommend
1	Will you recommend this dealer to your friends					
2	Based on your most recent experience would you like to come go back to the same dealer					
Housekeeping		Poor	Average	Good	Very Good	Excellent
1	Cleanliness and appearance of service area and workshop					
2	Cleanliness and appearance of customer lounge					
3	Cleanliness and appearance of front office					
Personnel Behaviour		Poor	Average	Good	Very Good	Excellent
1	Helpfulness of service advisor in listening to your needs					
2	Understanding of the specific problem with your vehicle					
3	Courtesy extended in serving you					
4	Helpfulness of spare parts department in providing spare parts for service					

C-1.2 Calculation of Customer Satisfaction Index (CSI)

C-1.2.1 *Average Score for Each Parameter*

Parameter	*Description*	*Total Score of All Response*	*Number of Responses*
Quality			
1	Quality of work performed	Q_1	n_1
2	Ability to fix the problem on first visit	Q_2	n_2
3	Availability of parts for service/repair	Q_3	n_3
4	Availability of trained personnel to do the job	Q_4	n_4
5	Availability of proper tools and equipments	Q_5	n_5
	Average Score = Q_s	$\Sigma Q_i / (25 \Sigma n_i)$	
Timeliness			
1	Promptness of the service advisor in writing your job order	T_1	n_1
2	Time taken for service	T_2	n_2
3	Availability of serviced vehicle at promised deliver time	T_3	n_3
	Average Score = T_s	$\Sigma T_i / (15 \Sigma n_i)$	
Value			
1	Explanation of charges at the time of delivery	C_1	n_1
2	Fairness of fees for service	C_2	n_2
	Average Score = C_s	$\Sigma C_i / (10 \Sigma n_i)$	
Image			
1	Will you recommend this dealer to your friends	I_1	n_1
2	Based on your most recent experience would you like to come go back to the same dealer	I_2	n_2
	Average Score = I_s	$\Sigma I_i / (10 \Sigma n_i)$	
Housekeeping			
1	Cleanliness and appearance of service area and workshop	S_1	n_1
2	Cleanliness and appearance of customer lounge	S_2	n_2
3	Cleanliness and appearance of front office	S_3	n_3
	Average Score = S_s	$\Sigma S_i / (10 \Sigma n_i)$	

Parameter	*Description*	*Total Score of All Response*	*Number of Responses*
Personnel Behaviour			
1	Helpfulness of service advisor in listening to your needs	P_1	n_1
2	Understanding of the specific problem with your vehicle	P_2	n_2
3	Courtesy extended in serving you	P_3	n_3
4	Helpfulness of spare parts department in providing spare parts for service	P_4	n_4
	Average Score = P_s	$\Sigma P_i / (20 \Sigma n_i)$	

C-1.2.2 *Weighted Scores*

Weighted scores for each parameter is calculated as follows:

Parameter	*Average Score*	*Weights*	*Weighted Scores*
Quality	Q_s	w_1	w_1Q_s
Timeliness	T_s	w_2	w_2T_s
Value	C_s	w_3	w_3C_s
Image	I_s	w_4	w_4I_s
Housekeeping	S_s	w_5	w_5S_s
Personnel behaviour	P_s	w_6	w_6P_s
CSI = $w_1Q_s + w_2T_s + w_3C_s + w_4I_s + w_5S_s + w_6P_s$			

NOTES

1 The weights are to be assigned based on the importance of the parameter.

2 $w_1 + w_2 + w_3 + w_4 + w_5 + w_6 = 100$.

C-1.2.3 *Customer Satisfaction Index (CSI)*

The customer satisfaction index (in percent) is the sum of weighted scores for all the parameters.

$$\text{CSI (percent)} = w_1Q_s + w_2T_s + w_3C_s + w_4I_s + w_5S_s + w_6P_s$$

ANNEX D

(*Foreword*)

COMMITTEE COMPOSITION

Statistical Methods for Quality and Reliability Sectional Committee, MSD 3

Organization	*Representative(s)*
Indian Statistical Institute, New Delhi	Dr Arvind Seth (***Chairman***) Prof S. R. Mohan (*Alternate*)
Bharat Heavy Electricals Ltd, New Delhi	Shri S. N. Jha Shri A. V. Krishnan (*Alternate*)
Birla Cellulosic, Bharuch	Shri Vaidyanathan Shri Sanjeev Sadavarti (*Alternate*)
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Shri Lalit Mehta
Joint Director (MSD), BIS

(*Continued from second cover*)

The overall aim is to enhance customer satisfaction. Its measurement helps to:

a) assesses performance from the customer's viewpoint; and

b) provide a platform for strategic alignment of organizational resources to deliver whatever is most important to customers.

Used effectively and strategically, customer satisfaction measurement can be a management information system which continuously captures the voice of the customer.

The composition of the Committee responsible for the formulation of this standard is given in Annex D.

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